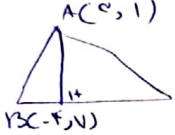


$AC(4, -4)$
 $BC(2, 1)$

$m' = \frac{1}{V} \rightarrow y = \frac{1}{V}x + b \xrightarrow{(2,1)} 1 = \frac{2}{V} + b$
 $b = \frac{F}{V} \rightarrow y = \frac{1}{V}x + \frac{F}{V}$

$M(\frac{F+2}{2}, \frac{-4+1}{2}) \rightarrow M(3, -1.5)$
 $m_{AB} = \frac{\Delta y}{\Delta x} = \frac{1-(-4)}{2-4} = \frac{5}{-2} = -2.5$
 $m \times m' = -1 \rightarrow m' = \frac{1}{2.5} = \frac{2}{5}$

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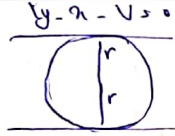
$AB \text{ طول} = \sqrt{\Delta x^2 + \Delta y^2} = \sqrt{4^2 + 1^2} = \sqrt{17}$

$m_{BC} = \frac{V-1}{-4+1} = \frac{K}{-3}$
 $y = \frac{K}{-3}x + b \xrightarrow{(-1,2)} 2 = \frac{K}{-3} + b$
 $b = \frac{6+K}{3}$
 $\Rightarrow y = \frac{K}{3}x + \frac{6+K}{3}$

$AB \text{ خط} = \frac{|ax+by+c|}{\sqrt{a^2+b^2}} = \frac{|(3 \times 4) + (1 \times 0) + (-6)|}{\sqrt{3^2+1^2}} = \frac{6}{\sqrt{10}} = \frac{3\sqrt{10}}{5}$

$BC \text{ خط} - AH \text{ خط} = 6 - 2 = 4$

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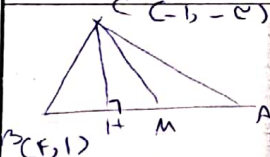
$y - x - V = 0$
 $x^2 + y^2 - 2x - 2y + 1 = 0$
 $\frac{1}{r} = \frac{a}{r} \rightarrow a = 2$

$xy - ax - 2y = 0 \rightarrow xy - 2x - 2y = 0$

$r = \frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{|-1-2|}{\sqrt{1+1}} = \frac{3}{\sqrt{2}} \rightarrow r = \frac{3\sqrt{2}}{2}$

$Col = \pi r^2 = \pi \times (\frac{3\sqrt{2}}{2})^2 = \frac{9\pi}{2}$

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$m_{AB} = \frac{1-1}{1-2} = 0$
 $y = -x + b \xrightarrow{(2,1)} 1 = -2 + b \rightarrow b = 3$
 $y = -x + 3$

$CH \text{ خط} = \frac{|ax+by+c|}{\sqrt{a^2+b^2}} = \frac{|(1-1) + (1-2) + 1|}{\sqrt{1+1}} = \frac{1}{\sqrt{2}}$

$M(\frac{2+1}{2}, \frac{1+1}{2}) \rightarrow M(1.5, 1)$
 $CM \text{ خط} = \sqrt{\Delta x^2 + \Delta y^2} = \sqrt{(1-1.5)^2 + (2-1)^2} = \sqrt{0.25+1} = \sqrt{1.25} = \frac{\sqrt{5}}{2}$

$CH^2 + MH^2 = CM^2 \rightarrow \frac{1}{2} + MH^2 = 1.25 \rightarrow MH^2 = 0.25 \rightarrow MH = \frac{\sqrt{2}}{2}$

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$(3m-2)x + (2-m)y - V = 0 \rightarrow m = \frac{2-3m}{2-m}$
 $(m+1)x - (2m-4)y + 1 = 0 \rightarrow m' = \frac{m+1}{2m-4}$
 $m \times m' = -1$

$\rightarrow (\frac{2-3m}{2-m}) \times (\frac{m+1}{2m-4}) = -1 \rightarrow \frac{2-3m}{2-m} = \frac{4-2m}{1+m} \rightarrow 2m^2 - m + 2 = 2m^2 - 14m + 10 \rightarrow 13m = 8 \rightarrow m = \frac{8}{13}$

$\rightarrow 2m^2 - 14m + 10 = 0 \rightarrow \Delta < 0$

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